PAPERS

IN

AGRICULTURE.

AGRICULTURE.

THE following Certificate and Letter having been received, the Gold Medal, being the Premium offered for planting Larch, was this year adjudged to the Lord Biſhop of Landaff.

THIS is to certify, That, between the 24th of June 1787, and the 24th of June 1788, I planted, for the Lord Biſhop of Landaff, at a diſtance not more than five feet, except where rocks intervened, forty and eight thouſand five hundred Larches, between two and four years old, in a field called Wansfell, near Ambleſide; which

field is well fenced with a ſtone wall, ſix feet high. Witneſs my hand,

THOMAS CLARK,

Nurſery-man at Keſwick.

Witneſs, JOHN BENSON,

Steward to the Biſhop of Landaff.

Keſwick,

Keſwick, Dec. 12, 1788.

SIR,

IN anſwer to your requeſt of the 9th inſtant—I planted, in a field called Wansfell, for the Lord Biſhop of Landaff, forty-eight thouſand five hundred Larch Firs, from two to four years old, at about four feet diſtance, except where rocks intervened; likewiſe a large quantity of Foreſt Trees, in the ſame incloſure: the whole is well fenced with a good ſtone wall, ſix feet high: in conſequence of which I did ſign a Certificate, addreſſed to your Society; and am,

Sir,

Your moſt obedient,

and humble ſervant,

THOMAS CLARK.

Mr. MORE.

In conſequence of the Society having received the following Certificate, and Account, the Gold Medal, being the Premium offered for Plantations of mixed Timber-Trees, was this year adjudged to John Sneyd, Eſq; of Belmont, in Staffordſhire.

THIS is to certify, That John Sneyd, Eſq; did plant, in land well incloſed with good ſtone walls, at Belmont, Staffordſhire, the following mixed Timber-Trees, on twenty-ſeven acres, two roods, and eighteen poles, between the firſt of October, 1784, and the firſt of May, 1786, at two, three, four, or five feet diſtance, according as the land would admit (which is a light Loam and Sand, with a mixture of Marl, and chiefly rough and ſtony); and that they are now in a thriving and healthy ſtate.

Oaks, two years old,	tranſplanted	24,000
Ditto, three years old,	ditto	6,000
Scotch Pines, four years old,	ditto	12,600
Ditto, three years old,	ditto	31,300
Beech, four years old,	ditto	5,300
Ditto, three years old,	ditto	9,000
Spaniſh Cheſnuts, two years old,	ditto	6,000
Ditto, one year old	ditto	2,000
Larch, five years old,	ditto	6,500
Ditto, four years old,	ditto	6,500
Sycamores, three years old,	ditto	500
Ditto, two years old,	ditto	5,000
Aſh, three years old,	ditto	3,000
Ditto, two years old,	ditto	3,000
Elms, three feet, narrow-leaved	ditto	1,962
Ditto, two feet, Engliſh,	ditto	2,000
Spruce, white, one foot,	ditto	5,000
Spruce, black, one foot,	ditto	200
Limes, one foot,	ditto	100
Planes, four feet, Oriental,	ditto	100
Ditto, Occidental,	ditto	100
Lombardy Poplar, three feet,	ditto	300
Cratœgus Area,	ditto	50
Mountain Aſh, five feet,	ditto	100
Ilex, one foot,	ditto	700
Scotch Pines omitted, three years old,	ditto	200
Spruce ditto, two years old	ditto	200
Elms ditto, two years old,	ditto	300
Horſe Cheſnuts, three feet,	ditto	200
		132,212

Certified by me, this 28th of October, 1788, who remember the Plantations, as above, being made, and have lately ſeen them in a thriving and healthy ſtate.

EDWARD FERNYHOUGH,
Miniſter of Ipſtones.

Chedleton, Nov. 22, 1788.

SIR,

IN anſwer to your requeſt, dated the 12th inſtant, and received on the 20th, relative to the Plantation of John Sneyd, Eſq; of Belmont, in the pariſh of Ipſtones, and county of Stafford; I beg leave to inform you, that between the 1ſt of October, 1784, and the 1ſt of May, 1786, were planted therein one hundred and thirty-two thouſand two hundred and twelve Foreſt-Trees, for Timber, as repreſented to me; and I, having ſeen the ſaid Plantation and Fences, did certify it to the worthy Gentlemen of your Society.

I am, Sir,
Your moſt obedient ſervant,
EDWARD FERNYHOUGH.

Mr. MORE.

The

The Thanks of this Society were voted to Mr. W. Jones, of Foxdown-Hill, near Wellington, Somerſet, for the following Obſervations on the Uſes of the Wood of the Spaniſh Cheſnut Tree; and Mr. Jones was acquainted, by Letter, That the Society, ſenſible of the Utility of the Wood of that Tree, have, during many years, offered Premiums to encourage the Growth of it; and a Copy of the ſeveral Advertiſements on that head were ſent to him.

SIR,

December 4, 1788.

SIR,

HAVING lately built a Houſe, I had occaſion to buy a great part of the timber; and knowing a Friend of mine to have ſome Spaniſh Cheſnut Trees of a large ſize (one of them ſquared upward of two feet) I bought ſeveral of them, and uſed the timber for various purpoſes, inſtead of Oak; and finding ſome of it very ſound, and finely variegated, I reſerved it for Doors, and Balluſtrades of a Stair-caſe; and gave them a colour (by rubbing them over firſt with Alum-water, then laying on, with a bruſh, a Decoction of Logwood Chips; and, laſtly, a Decoction of Brazil Wood) equal to Mahogany. It is not my opinion only; for both the Doors and Balluſtrades have been frequently taken for Mahogany; and every perſon who ſees them is ſure to admire them.

them. This timber being ſo valuable for theſe purpoſes, (for it is acknowledged, by every perſon I have converſed with about it, that it is leſs liable to warp than any other timber) I became very deſirous to be informed of its utility when expoſed to the weather; and inquired of my Carpenter, if he ever knew it proved? He replied, That he did; and believed it, in every reſpect, equal to Oak; and could ſhow me (in the pariſh in which I reſide) Gate-Poſts of the Spaniſh Cheſnut, which when I ſaw, I ſhould be convinced, as well as he was, of the utility of this wood for ſuch purpoſes. He informed me alſo, that, in or about the year 1763, (full as long ago) he worked with his Father on this Farm, to repair the Gates and Gate-poſts; ſome of the Poſts were of Oak, and others of Spaniſh Cheſnut; that the latter had the appearance of being put in at the ſame time with the Oak, but were more ſound, in ſo much that ſome of them were adjudged good enough to remain as Gate-poſts, and are now to be ſeen there:

there: ſuch of them as were too ſmall to continue for Gate-poſts, were then taken up, and put into the ground, for Poſts to fix rails to, for Fence of a Maw-Barton, on the ſame Farm. He at the ſame time put in alſo ſome new Poſts of Oak (to fix ſome of the rails to), there not being enough of the old Poſts of the Spaniſh Cheſnut. On receiving this account, I could not reſiſt the inclination I had to ſee the Poſts he ſpoke of; and, within a week paſt, I took the opportunity, and can aver that, though the Spaniſh Cheſnut were *old* Poſts when put in, twenty-five years ago, they appear to me to be more ſound than thoſe of Oak which were put in new at the ſame time. I obſerved that one ſide of one of the Spaniſh Cheſnut Poſts was the outſide of the Tree, from whence the Bark is of courſe gone; but the Timber is as perfectly ſound there as in any other part; which would not have been the caſe with Oak, the Sap of which, next the Bark, ſoon decays. This Carpenter is ready to make

an

an affidavit, that he put in theſe old Spaniſh Cheſnut Poſts full twenty-five years ago; and alſo that his Father (who has been dead about five years) had often told him, that he did the work conſtantly on this Farm from the year 1745; and that the Spaniſh Cheſnut Gate-poſts on the Farm muſt have been put in many years before that period, as they appeared to be old Poſts when he firſt knew them; which proves the Spaniſh Cheſnut Poſts now ſtanding around the Maw-Barton to have been forty-three years expoſed to the weather, *viz.* eighteen years as Gate-poſts, from the year 1745 to 1763; and twenty-five years as Poſts for fixing rails to, from 1763 to this time: but how much longer they had ſtood as Gate-poſts before the year 1745, cannot be aſcertained.

I have taken Chips* from theſe Spaniſh Cheſnut Poſts, and ſhall take the liberty of

* Three Chips, marked N° 1, taken from the top of the Poſts.

Three

of ſending them to you, (by the Exeter mail-coach, which goes through Bath to-morrow) to ſhow what a ſtate of preſervation they are in: and have only to add, that I have every reaſon to believe this account of their being expoſed to the weather the length of time before repreſented; and ſhall be very happy if theſe Obſervations ſhould be thought worthy the attention of ſo reſpectable a Society, inſtituted for ſuch laudable purpoſes; and tend to promote the propagating of this Timber, which cannot fail of being highly beneficial to poſterity.

I am,

Sir,

Your moſt obedient ſervant,

W. JONES.

Mr. MORE.

Three Chips, marked N° 2, taken from the ſide of the Poſts, and plainly appearing to have been the outſide of the Tree, from whence the Bark is gone.

Theſe Chips remain in the Society's Repoſitory, for the inſpection of the curious.

In the Sixth Volume of theſe Tranſactions is inſerted a particular Account of ſome Experiments, made on a large ſcale, by Mr. John Boote, of Atherſtone upon Stower, to determine the comparative advantage of The Drill and Broad-caſt Huſbandry; for which the Gold Medal was adjudged to him.—This year the following Letter having been received, the Gold Medal (the Premium offered on that ſubject) was again adjudged to Mr. Boote; and it is hoped the following Paper will be found to contain very ſatisfactory information on a buſineſs that has ſo long divided the opinions of ſome of the moſt attentive and enlightened Agriculturiſts in theſe Kingdoms.

SIR,

SIR,

AS my former accounts of Experiments comparatively made between Drilling and Broad-caſting, in order to diſcover which was the moſt advantageous method of cultivating Land, have met with a favourable reception by the Society of Arts, Manufactures, and Commerce, I am induced to lay before them a further ſtatement of my ſucceſs in Drilling, upon a ſcale of three hundred and twenty-three acres, in the year 1788 (which makes the third year of my practice at large, in the Drill ſyſtem, upon my Farm) *viz.* Wheat ſeventy, Barley ninety, Oats ſeven, Beans fifty-two, Peas twenty-eight, Turneps ſeventy, Cole ſix acres.

The comparative Experiments which I made in the year 1787, between Drilling and Broad-caſting four acres of each with Wheat, was upon cold Clay, that being the

the only ſoil upon which I entertained at that time any doubts of the Drill Syſtem having a ſuperiority over the Broad-caſt; and having repeatedly and ſucceſsfully derived an uniform ſuperiority in favour of Drilling, on light ſands and dry loams, it was my intention never to give myſelf the trouble of repeating a comparative experiment on ſuch ſoils: but, reflecting on the attention which the Society have paid to my former Letters on the ſubject of Drilling, by giving them a place in their Tranſactions; and conſidering that the Society, by continuing to offer a Premium for the comparative culture of Drilling and Broad-caſting, was deſirous of ſtill further experiments than thoſe I have already communicated; I determined to ſacrifice the profits of ſixteen pounds, which, from the reſult of former experiments, I had reaſon to believe I ſhould loſe, by ſowing four acres broad-caſt, to the pleaſure and ſatisfaction I might have in furniſhing the Society with the reſult of a comparative experiment between

Drilling and Broad-caſting four acres of each upon a ſandy loam, agreeably to the terms propoſed by the Society for making ſuch aſcertainment.

Accordingly I fixed upon a twenty-acre piece, which was trench-ploughed for a turnep-fallow in the beginning of November, 1786, and dunged about Chriſtmas following; afterwards ploughed three times, at proper intervals; alſo harrowed occaſionally, and drilled with turneps, in rows twelve inches apart: the turneps were well hoed three times, and produced an exceeding good crop; which was eat off by ſheep in Autumn: the land was afterwards trench-ploughed, four acres of which were drilled with four buſhels of wheat; the ſame day four acres adjoining (the ſoil as ſimilar as poſſible) were ſown broad-caſt with ten buſhels of wheat, in order to make the comparative experiment.

In the firſt week of April, 1788, the drilled wheat was hoed, and repeated the laſt

laſt week in the ſame month; at which time the broad-caſt was alſo hoed, with hoes of a proper ſize for the purpoſe, in order to give it every advantage: at harveſt the crops of the reſpective four acres were ſeparately reaped, each laid by itſelf in the barn, and ſeparately thraſhed, in order to aſcertain, with the greateſt accuracy, the difference of each produce. The reſult as follows; which alſo appears in the numbers 14 and 15 of the next aſcertainments.

Produce of four acres Drilled, one hundred and nineteen buſhels, one gallon, and four pints; produce of four acres Broad-caſt, ninety-four buſhels, two gallons, and four pints—difference in favour of Drilling, twenty-four buſhels, ſeven gallons, which, at five ſhillings and ſixpence per buſhel, together with ſix buſhels of ſeed ſaved by drilling, which coſt me ſeven ſhillings and four pence halfpenny per buſhel, amounts to nine pounds one ſhilling and three farthings. Deduct the extra-expences

of drilling four acres at ſixpence, and extra-hoeing at eighteen pence per acre, amounting to eight ſhillings, the net profit in favour of Drilling will be eight pounds thirteen ſhillings and three farthings, or two pounds three ſhillings and three pence per acre.

From the apparent diſproportion between the real advantages in favour of Drilling, as above, and my apprehenſion, in a former Letter, of loſing ſixteen pounds by ſowing four acres broad-caſt, it may at firſt ſight be inferred, that I muſt have been very much miſtaken in my calculations reſpecting the real advantages of Drilling, compared with thoſe of Broad-caſting; on which account I have to obſerve, that toward the latter end of April, 1788, when the four acres drilled, three weeks after it had been hoed, gained ſuch a decided ſuperiority over the adjoining four acres broad-caſt, which was ſelf-evident by the ſtrength of the plants, and being of a darker green, that I determined to give the Broad-caſt every advantage:

tage: accordingly I had it as well hoed as was practicable to be done; which is, in fact, doing all that can be done for any broad-caſt crop: this evidently improved the four acres broad-caſt; otherwiſe I am decidedly of opinion, that, in caſe the hoeing of the four acres broad-caſt had not taken place, but the weeds had been ſuffered to grow, the four acres drilled would have exceeded the four acres broad-caſt more than one third; from whence I cannot ſee that I have any reaſon to make the leaſt abatement reſpecting my aſſertions in a former Letter, that I was apprehenſive I ſhould loſe ſixteen pounds by ſowing four acres broad-caſt. Hoeing of broad-caſt corn is nothing new with me, or others; it is commonly done in Berkſhire, and other places; and was my uniform practice for twelve or thirteen years of my broad-caſt farming: but as it cannot be performed ſo effectually in a broad-caſt crop as in a drilled one, it is unreaſonable to expect equal advantages from it, ſince, after all the care and pains that

can be taken in hoeing a broad-caſt crop, there will be many weeds left growing, being ſo mixed and interwoven with the corn, as not to be cut up without cutting up the corn alſo. I muſt own, that neither the produce of the above four acres drilled, nor the produce of the four acres broad-caſt, came up to my expectations, conſidering the due preparation of the ſoil. This I attribute entirely to the dryneſs of the ſeaſon: there is nevertheleſs this inference to be drawn from it, That in whatever proportion any drilled crop may ſuffer in a dry ſeaſon, for want of moiſture, the broad-caſt crop will ſuffer ſtill more, by reaſon of the ſeed being depoſited at improper depths; for the plants of thoſe ſeeds in particular which were ſown too near the ſurface of the land, will be almoſt parched up for want of moiſture in a dry ſeaſon.

In my attempts to aſcertain the difference between Drilling and Broad-caſting, I am ſomewhat ſurpriſed it ſhould never occur to me

me before now, to aſcertain the difference in quality as well as quantity of grain produced from both methods of culture, by weighing equal quantities of each. In the above comparative experiment the Drill has no material advantage over the Broad-caſt; a buſhel of the latter being nearly equal in weight to a buſhel of the former: this I attribute to the circumſtance of the broad-caſt crop being hoed, particularly as my neighbour Mr. William Greenway informs me, that, from the reſult of his experiments of laſt year, in order to aſcertain the difference between Drilling and Broad-caſting, the grain of his drilled crop was ſuperior to that of his broad-caſt, not only in quantity, but alſo in quality, two pounds weight per buſhel; and his broad-caſt crop was not hoed: from whence I conclude, that the grain of his broad-caſt crop was imperfectly vegetated, and not brought to full maturity, by reaſon of the injury done to it by the weeds, or for want of the ſoil being pulverized by the hoe.

In one of my early experiments in Drilling, I found that hoeing the intervals between the rows or drills was indiſpenſably neceſſary; otherwiſe, where land was foul with weeds, or caked upon the ſurface, ſo as to exclude the air from the fibres of the plants, or hinder the extenſion of the fibres in the ſoil, the advantages of Drilling were, upon the whole, not worthy of notice. On the contrary, and by the ſame experiment, I found that, by hoeing the intervals, cutting up the weeds, and pulverizing the ſoil at ſeaſonable times, a ſurpriſing and almoſt incredible advantage might be derived: this left me no alternative but that of declining the Drill Syſtem altogether, except for beans and peas, at wide diſtances, where the horſe-hoe, or ſhim, might work; or of ſubmitting to the formidable expence of hand-hoeing the intervals of drills at nearer diſtances. To the advantages gained by hoeing, I was at that time no ſtranger; and I was not long in finding out that the value of ſeed ſaved by Drilling, would more than defray the expences of hoeing; and the

hoeing,

hoeing, I was confident, would inſure a ſuperior crop: from whence I concluded that the only obſtacle that lay between me and ſucceſs, in the Drill Syſtem, upon a large ſcale, was the difficulty, if not the impoſſibility of procuring a ſufficient number of labourers to perform the buſineſs of hoeing, juſt at the time required: and, as I apprehended, ſo it has turned out: the difficulty in procuring a number of hands in due time, and, in tickliſh ſeaſons, perhaps at an hour's notice, is very conſiderable; excluſive of the attention required in ſeeing that the work was done in a huſbandmanlike manner, and the fear of the crops of corn growing too high to admit of the uſe of the hoe: the weeds at the ſame time committing ſuch horrid depredations, without a poſſibility of retrieving the loſs, muſt needs create no little anxiety of mind.

Anxious, however, as I may have been, at intervals, on this account, for three years laſt paſt, I have now the pleaſure of ſaying, that all the above fears and anxieties,

anxieties are done away, being now in poſſeſſion of an inſtrument, viz. a Horſe-hoe, the ingenious invention of the Rev. Mr. Cooke, to whom a large ſhare of public praiſe is certainly due, not only for this inſtrument, and his improved Drill, but alſo for his ſpirited exertions, and indefatigable labour, in introducing the Drill Syſtem at large. Of the utility of the above Horſe-hoe I am inclined to entertain a very high opinion, having already tried it upon a piece of drilled wheat; and find that the Inventor has, by a moſt ſimple contrivance, enabled the perſon who attends the inſtrument, to guide it ſo as to avoid cutting up the rows of corn. Its effects appear to be ſuperior to thoſe of Hand-hoeing; and, ſo far as I have experienced, I have reaſon to believe that two men, or one man and a boy, with two horſes, working alternately, will effectually hoe ten acres a day.

It is not uſual with me to decide haſtily and prematurely, for or againſt any inſtrument

ment not yet ſufficiently tried: I am nevertheleſs inclined to think, that by this invention the Drill Syſtem will ſoon be brought to perfection, at leaſt to ſuch a degree of perfection as to enable every huſbandman of common capacity only, to underſtand and practiſe it.

I am,

SIR,

Your moſt humble ſervant,

JOHN BOOTE.

Atherſtone upon Stower,
near Stratford upon Avon,
Jan. 31, 1789.

Mr. MORE.

ACCOUNT

ACCOUNT of the different Sorts of Grain produced from Seed ſown by the Rev. Mr. Cooke's DRILL MACHINE, on the Eſtate of Mr. John Boote, of Atherſtone upon Stour, near Stratford upon Avon, in the County of Warwick, in the Year 1788.

	Land meaſured. A.	R.	P.	Produce of the Land meaſured. Buſh.	Gal.	Pints	Produce per Acre. B.	G.	P.
N° 1. Beans drilled upon loamy ſand, after barley	0	1	12	13	5	6	42	1	5
2. Ditto ditto ditto	0	1	14	12	6	6	38	0	3
3. Barley, drilled upon loamy ſand, after turneps	0	2	36	44	5	4	61	5	0
4. Barley, drilled upon ſandy land, after peas	0	1	13	17	3	5	52	5	4
5. Ditto ditto ditto	0	1	15	22	7	1	66	4	5
6. Ditto ditto ditto	0	1	35	29	3	5	62	6	5
7. Beans drilled upon ſand and mixed ſoil, after barley	0	1	27	18	4	2	44	2	0
8. Peas drilled upon marl, and mixed ſoil, after wheat	0	2	10	17	7	0	31	6	1
9. Ditto ditto, upon mixed ſoil, after wheat	0	0	38	10	0	3	42	2	3
10. Wheat drilled upon marl and mixed ſoil, after clover	0	1	1	7	4	5	29	4	4
11. Ditto, upon clay and mixed ſoil, after fallow	0	0	31	6	0	4	31	2	2
12. Wheat drilled upon loamy ſand, after clover	0	2	7	22	3	5	41	2	2
13. Oats drilled upon loamy ſand, after turneps	0	2	35	44	5	4	62	1	3
14. Wheat drilled upon loamy ſand, after turneps	4	0	37	126	1	1	29	6	3
15. Wheat ſowed broad-caſt, upon loamy ſand, after turneps, and adjoining the drilled in the ſame ground	4	2	11	107	6	2	23	4	5

The above land was meaſured, and the workmen examined, by me

JOSEPH BARBER.

Wimpſtone, near Stratford upon Avon,
Jan. 28, 1789.

The Thanks of the Society were ordered to the Right Honourable the Earl of Fife, for the following Communication reſpecting the trials, made under his Lordſhip's direction, of the Mangal Wurzel, or Root of Scarcity, Turneps, Carrots, and Turnep-rooted Cabbage, as food for cattle.

Whitehall,

Whitehall, Feb. 23, 1789.

SIR,

I WAS very deſirous to encourage the cultivation of the Mangal Wurzel, or Root of Scarcity, as it was recommended by reſpectable authority.

I thought it beſt to try it on my own farm before I recommended it to my farmers. I purchaſed the ſeed from Mr. Eddie, in the Strand; and ſent it, with the printed book of directions, with orders to follow them exactly; which was accordingly done, as far as the ſeaſon would permit. It was the end of March when the ſeeds were ſown in a warm border in the kitchen-garden: it was tranſplanted into a field, in fine order, about the beginning of May; and, for the four following months, hand-hoed, and kept perfectly clean. The produce has not anſwered expectation; the leaves were only twice gathered; and when the

the roots were taken up, the average weight was only from three to four pounds: about one hundred ſeeds, indeed, were ſown in the hot-houſe, and tranſplanted to a border in the garden, in April; and the roots produced from them weighed from nine to ten pounds each, when taken up in November. On ſo ſmall a ſcale, and in ſuch a ſituation, no judgement can be formed of its value. In the ſame field where the Root of Scarcity was planted, there was an acre of Carrots, an acre of Turnep-rooted Cabbage, and ten acres of common Turnep: I ordered the produce of one hundred ſquare yards, of each kind, to be weighed; found the weight to be as follows:

	Stone	lb.
Common Turneps, weight	92	4
Carrots . . .	95	0
Root of Scarcity . . .	77	0
Turnep-rooted Cabbage . .	88	0

The Turnep-rooted Cabbage was planted in lines twenty inches apart; the Common Turnep,

Turnep, ſown broad-caſt. The Carrots were alſo ſown broad-caſt, and hand-weeded; by which means they were very thick; not more than three or four inches apart when full grown. You will obſerve, this experiment, with reſpect to the weight and produce, makes againſt the Root of Scarcity: I am confident it is alſo inferior in the nutritive quality. The hand-pulling the leaves is expenſive; and this happens at a time when all other vegetables are in perfection. I ordered two cows to be fed ſix weeks on Turneps, two alſo on Turnep-rooted Cabbage, and two on the Root of Scarcity: the dairy-maid, in order to aſcertain the quantity that each cow gave, meaſured the milk when they were put up: ſince that time ſhe has meaſured it every two or three days: ſhe finds that the cows fed on the Common Turnep give moſt milk, that thoſe on the Turnep-rooted Cabbage the next, and thoſe on the Root of Scarcity the leaſt: the milk however of the cows fed on the Root of Scarcity has no bad taſte. There is no crop that has been tried on my farm,

farm which anſwers ſo well as Carrots: my work-horſes have been fed on them, at the rate of two pecks each a day, when they had no corn, and little more than half the uſual quantity of hay given to them; the horſes were kept at work every day from ſeven to eight hours, and were never in better order. I ſhall be glad that you lay this before the Society, if you think it merits their attention.

I have the honour to be,

With great reſpect,

SIR,

Your moſt obedient

humble ſervant,

FIFE.

Mr. MORE.

THE following Certificate and Letter having been received, The GOLD MEDAL, being the Premium offered for the cultivation of the *Rheum Palmatum*, or true Rhubarb, was this year adjudged to Mr. JOHN BALL, Surgeon, at Williton, in Somerſetſhire.

THIS is to certify, That John Ball, Surgeon, in Williton, in the pariſh of St. Decuman's, and county of Somerſet, hath raiſed this year upwards of four hundred plants of the Rheum Palmatum, or true Rhubarb; that they ſtand ſix feet aſunder each way; that they have been in a very thriving ſtate during the preceding ſummer, in a ſouthern aſpect, and ſandy ſoil: the culture, one part good rotten dung, and two parts rich earth from the gutters in watered meadows (having been thrown together for two years, and often turned); two parts old cobb (alias mud-wall), and ditto of ſifted coal aſhes; and in order that the roots ſhall

have a ſufficient depth, each plant is ſet in a hole, dug three feet deep and three feet wide, and filled with the above manure well mixed together.

G. KNYFTON, Miniſter.

ROBERT DORE,
RICHARD MORLE, } Church-wardens.

Williton, near Watchet,
Somerſetſhire, Nov. 1, 1788.

JOHN TREVELYAN,
Nettlecombe, near Taunton.

HENRY TRIPP,
Orchard-Wyndham, near Williton.

SIR,

YOUR favour, dated Adelphi, Feb. 18, 1789, found me at Williton, Sunday the 22d, where I was on duty, it being a chapel

of eaſe to the church of St. Decuman's. I ſigned Mr. Ball's Certificate, imparted to him the contents of your Letter, and was referred to his ſervant, William Gibbs, for information; the reſult of which was—that he (Gibbs) not only ſuperintended, but executed the greateſt part of the work relative to the ſaid Rhubarb—that the quantity of manure was two teams of dung to each pit, value three pence per team;—conſequently the manure for four hundred and thirty pits, in which the ſaid number of plants were placed, coſt ten pounds fifteen ſhillings; and that every twenty pits coſt him in digging one ſhilling and three pence: and he farther adds, that he is at this time giving them a freſh dreſſing of good rotten dung. This, I believe, fully anſwers the requiſition made by you to

Your humble ſervant,

GEORGE KNYFTON.

Williton, Feb. 24, 1789.
St. Decuman's, Taunton,
Somerſet.

Mr. MORE.

THE

THE improvement of the waſte Moor Lands in this kingdom is an object of ſuch great importance, that the Society has long conſidered it as a fit ſubject of their encouragement and reward.

The annexed Account, which was received laſt year, not entirely agreeing with the conditions publiſhed in the Society's advertiſement, the Gold Medal, being the premium offered, could not be adjudged to the candidate; but in conſideration of the merit of the claim, the SILVER MEDAL was voted to MATTHEW STEPHENSON, of Smardall Hall, Weſtmoreland, Eſq. the proprietor of the land, for the following communication.

ACCOUNT *of the Improvement of three hundred and twenty-five acres of* MOOR LAND, *lying in the pariſhes of Aſby-Ormſide, and Warcop, in Weſtmoreland, and let from eighteen pence to two ſhillings per acre in its natural ſtate. The ſoil, a light mould, from five to ſeven inches deep; ſubſtratum, a ſtrong yellow clay; the natural produce a ſtrong benty graſs, mixed with a ſtinted ling: the whole divided into twenty-one fields, from ten to nineteen acres, planted with Whitethorn.*

NO. 1 and 2, about thirteen acres each, were pared and burned in 1778, the aſhes ſpread, and ploughed lightly in, and well harrowed and ſown from the 1ſt to the 8th of Auguſt with two buſhels of clean-dreſſed hay-ſeeds, and three pounds each of red clover, white clover, and hop clover, and four pounds of rib-graſs to an acre: the ſeeds flouriſhed during a ſevere winter, and both fields

fields were mowed the following year, and produced a very luxuriant crop, computed at near two tons per acre, and about thirty buſhels of hay-ſeeds per acre; the ſecond year they were again mowed, and the produce about two thirds of the former year, but equal in value, the hay being much finer. The fog or after-graſs was ploughed in, to tender and meliorate the ſtubborn furrow by the winter's froſt, and in the ſpring ſown with oats. The crop tolerable, ſomething more than thirty Wincheſter buſhels per acre.

The ſtubble was ploughed in, ſhallow, before the winter, and the land fallowed the next year (the fourth), and limed with forty buſhels to an acre, and ſown on the 2d, 3d, and 4th of September, part with different kinds of wheat, and part with meſlin, (which latter was the beſt); this early ſowing was ſuppoſed to be the proper ſeaſon in a cold country, and this opinion was afterwards confirmed by repeated trials. In the ſpring (fifth year), clover and hay ſeeds, as

above, were ſown in the wheat, but rather more rib-graſs, which ſucceeded the beſt: the produce was greatly beyond expectation; but the hardy cone wheat, rough eared, was the beſt of the wheat, yielding rather better than twenty-five buſhels per acre; the other wheat, twenty-two buſhels, on an average; and the meſlin, twenty-eight buſhels. Sixth, ſeventh, and eighth years, the graſs was allowed to be very good, and generally conſidered worth twenty ſhillings per acre.

No. 3 and 4.—Fourteen, and ſeventeen acres were pared and burned in 1779. No. 3 was ſown with turneps, which were ſmall, the ſeed laying in the ground five weeks without rain; ſecond year oats, very indifferent: this confirmed an opinion, that in this ſoil there is a faintneſs at firſt breaking-up, which is injurious to corn. Third year fallowed and limed forty buſhels to an acre, and ſown in the firſt week of September with cone wheat, and in the ſpring with

with graſs ſeeds and clover as before. The crop of wheat was very extraordinary, paying at the low price of four ſhillings and ſixpence per buſhel above ſix pounds per acre. 1783, 1784, 1785, continued in graſs, and then ploughed up again for corn.

No. 4.—Seventeen acres were managed as No. 1 and 2. The ſeaſon being dry, the turfs were well burnt, and produced plenty of aſhes, and were ſown down, on the 6th and 7th of Auguſt, with twelve buſhels of hay-ſeeds, two pounds each of red, white, and hop-clover, and ſix pounds of rib-graſs, (thriving the beſt, as before obſerved); the crop was much beyond No. 1 and 2. Ninety two two-horſe cart loads were led out of the field, and made into a ſtack, or rick, ſeventeen yards long, five yards broad, well furniſhed, and computed at forty ton, and produced near forty buſhels to an acre of hay-ſeeds. This field was a very good paſture for four years, when moſt of the cloyer being worn out, it was ploughed up for

for oats. It would be tedious, and perhaps unneceſſary, to give a circumſtantial account of all the other fields, and may ſuffice to ſay, the whole three hundred and twenty-five acres are now in cultivation, and raiſed to above four times the value, being let at nine ſhillings per acre, on an improvable leaſe: two compleat farm-houſes have been built, with all neceſſary convenience, on this improved land.

The reſult of this improvement ſeems to be, that, beginning with hay-ſeeds, and different kinds of clover, ſown on the ploughed-in aſhes, is greatly the moſt profitable—whether paring or burning is generally a good practice, ſeems to be a doubtful matter: but the doubts probably ariſe from the ſubſequent management uſually followed after this operation, in over-cropping the land; for, as to the idea of diminiſhing the ſoil, it is ſuppoſed to be erroneous, and that ſoil cannot be reduced by fire; however, it can ſcarce admit of a doubt, that paring and

and burning this benty, coarſe graſs, is the quickeſt and beſt method of reducing its tough ſward, and preparing it for cultivation; and when ſown down with graſs-ſeeds on the aſhes, never failed to produce great crops for three or four years; and that by following this method, viz. Firſt three years, graſs; next three years, two crops of corn, with an intermediate fallow, very profitable crops are produced on land, by nature of little value; and it is manifeſt in the above improvement, that by purſuing this method the crops have increaſed in goodneſs.

N. B. No dung was uſed in this improvement, except on one field laſt year for wheat for a trial, which of courſe had a great effect. The manure produced by the crops was applied to the improvement of the old incloſures, by which a double benefit was gained.

IT is impoſſible to teſtify to every particular of the above, without reſiding conſtantly on the ſpot; but the underſigned ſaw the crops on the ground, which well merited the above account given of them, eſpecially the graſs, which was very extraordinary: to the number of acres we can certify, having compared the fields with the plan of the eſtate; alſo, that the improvement was performed without dung, with one exception.

HUGH ATKINSON, Miniſter of Great Aſby,
RICHARD BOURFIELD, of Ormſide.

WILLIAM BARNET.

March 26, 1788.

THANKS

THANKS were returned to THOMAS WHITE, of Retford, Nottinghamſhire, Eſq. for the following communication relative to the growth of the Larch in the northern parts of theſe kingdoms.

SIR,

IN my letter to you of the 12th, I propoſed deferring my obſervations upon the Larch Tree, till the many different experiments which I am now making are more matured; in the interim, cannot deny myſelf the pleaſure of laying before the Society, an account of ſome of the oldeſt and largeſt Larch Trees in Britain, which I have this day received from a very ingenious and ſpeculative gentleman, Mr. Drummond, of Blair

Blair Drummond, in Scotland, ſon to the late Lord Kaims: ſhall be happy if it be acceptable.

I am,

SIR,

Your moſt obedient ſervant,

THOMAS WHITE.

Retford, Feb. 17, 1788.

Mr. MORE.

SIR,

WHEN I had the pleaſure of ſeeing you here in November laſt, you beſtowed ſo many handſome compliments upon my Larixes, that I ſhould be ungrateful if I neglected to perform the promiſe I then made of ſending you the dimenſions of

of the largeſt one, which you now have noted below.

	Feet.	Inch.
Circumference, one foot from the ground, clear of roots	9	6
Ditto, three feet from ditto -	7	6
Ditto, ſix feet from ditto -	6	6
Ditto, nine feet from ditto -	6	1
Ditto, twelve feet from ditto -	6	0½
Ditto, fifteen feet from ditto -	5	9
Ditto, thirty-five feet from ditto	5	1
Ditto, fifty-five feet from ditto	4	9
Ditto, ſeventy-five feet from ditto	3	9
Height to the extremity of top -	97	0
Cubic contents, - -	130	0

The above dimenſions were taken with all the attention poſſible, and are perfectly accurate. This tree is one of ſix that were planted in the year 1734; four of theſe, which are ſtill growing in the neighbourhood of the above one, are all fine trees, although none of them altogether ſo large as it is.

It

It is worthy of remark, that the ſoil in which theſe trees are produced, is a light mould, not above ſix inches deep, below which there is nothing but pure ſand. With a view to form a proper judgment of the quality of the wood, about a twelvemonth ago I cut down the worſt of theſe ſix trees, and had it ſawed into planks, a piece of one of which, you may recollect, I ſhewed you when here. I have ſince had ſome pieces of furniture made of it; and it is the opinion of every perſon of ſkill who has ſeen the planks, that they are, in every reſpect, at leaſt equal to the beſt Norway Fir. It muſt give pleaſure to every man who wiſhes well to this iſland, to obſerve, by the great plantations of Larix that are yearly made both in England and Scotland, that the value of this excellent tree is now ſo well underſtood; and if theſe plantations are continued for ſome years with the ſame ſpirit, there can be little doubt, that in half a century hence, the many thouſands at pre-

ſent annually ſent to Norway for timber, will be entirely ſaved to this country.

I am,

SIR,

Your moſt obedient humble ſervant,

GEO. DRUMMOND.

THO. WHITE, Eſq.

PART of the following Paper on the Improvement of Martin Meer was originally received, and intended to have been publiſhed, in the year 1786; ſince which, the ſubſequent part, contained in the Letter dated January 20th, 1789, has been communicated: and the Society having preſented their GOLD MEDAL to Mr. ECCLESTON, "for his ſpirited exertions "on the Improvement of Martin Meer, "by which three thouſand ſix hundred "and thirty-two acres of land have been "gained and protected from the inun-"dation of the ſea;" the Papers in their complete ſtate are now laid before the Public.

The Hiſtory of the Diſorder among the Horned Cattle at Standiſh, near Wigan, was alſo communicated by the ſame Gentleman.

SIR,

SIR,

THE incloſed is the moſt accurate account of Martin Meer, from its primitive ſtate to the condition it is now in, that I can make out; and if you judge the improvements worthy of being laid before the Society for the Encouragement of Arts, Manufactures, and Commerce, I ſhall be obliged to you to produce it whenever you think proper.

I am

Your very humble ſervant,

THOMAS ECCLESTON.

Scariſbrook, Feb. 2, 1786.

Mr. MORE.

MARTIN MEER was formerly a large pool, or lake of freſh water, of an irregular form, ſurrounded chiefly by moſſes or boggy land, containing near one thouſand ſeven hundred and ſeventeen acres, of eight yards to the pole, which is the cuſtomary meaſure of the neighbourhood, (about three thouſand ſix hundred and thirty-two ſtatute acres). It lies in the different Manors of Scariſbrick, Burſcough, North-Meols, Tarleton, and Rufford.

About the year 1692, Mr. Fleetwood, of Bank Hall, propoſed to the ſeveral other proprietors to drain Martin Meer, on condition that a leaſe (for the whole) of three lives and thirty-one years ſhould be granted him; which they agreed to; and Mr. Fleetwood obtained an Act of Parliament the ſame year to empower him to effect it. The following year he began the work: his plan was, to diſcharge the waters immediately into the ſea, at the mouth of the river

river Ribble, which before had forced themſelves a paſſage into the river Douglas, when the Meer waters were raiſed above their uſual height by the land floods, as is noted by Camden in his *Britannia*.

The intermediate ground between Martin Meer and the Douglas, lying conſiderably higher than the Meer, occaſioned the ſtagnation, and kept it continually full.

Mr. Fleetwood began the undertaking, by making a canal, or ſluice, twenty-four feet wide, of a depth ſufficiently lower than the Meer, which he cut from the Ribble mouth through an embanked ſalt marſh, and then through a moſs or bog in North Meols, about a mile and a half in length; and he continued it through the loweſt parts of the Meer. To prevent the ſea from ruſhing up the canal, and overflowing the Meer, which lies ten feet lower than high-water mark, at the ſpring tides, he erected

in his canal, near the ſea, a pair of flood-gates, which ſhut when the ſea waters roſe higher than thoſe in the canal, and opened again by the ſluice ſtream when the ſea retired. In this place, the mouth of the Ribble is nearly five miles over at the ſpring tides; but the bed of the river at low water is no more than a furlong in breadth; and it lies under the Lytham, or oppoſite ſhore to the flood-gates, about the diſtance of four miles from them. This is a very unfavourable circumſtance to the draining of the Meer, as it greatly diminiſhes the effect of the out-fall by the length of the way the waters have to run over a very flat, looſe, flying, ſandy coaſt, before they can diſembogue into the river. Theſe ſands in a few years after the drainage was finiſhed, drifting by the winds into the out-fall ſluice, ſoon obſtructed the flow of the waters, and in a ſhort time choaked up the paſſage, which had been made ſufficiently deep to carry them off.

The

The ſpring tides in boiſterous weather brought up great quantities of mud to the flood-gates; here it lodged in ſediment for want of a powerful current in dry ſeaſons to waſh it away: thus the wiſhed-for effect of ſo much labour was fruſtrated, for the Meer was once more nearly reduced into its primitive ſtate. In order to remove this deſtructive obſtacle of mud and ſand, the managers for Mr. Fleetwood, in the year 1714, thought it moſt adviſeable to raiſe the ſill or threſhold of the flood-gates, which they elevated twenty inches: this, with ſome other meaſures then adopted, did, for ſome time, enable them to keep the flood-gates free from the above-mentioned obſtructions.

But it proved very detrimental; for ſo much fall was loſt, that the arable and meadow grounds upon the Meer diminiſhed greatly in value, by the water remaining upon them all the winter, and very late oftentimes in the ſpring ſeaſon.

By a gradual, continual loſs of out-fall amongſt the ſands, and by the ſluice on the marſh and other parts wrecking up, the Meer lands for many years were only made uſe of as a poor, fenny, watery paſture for the cattle of the neighbourhood, and that for a part of the ſummer months only.

Some time after, Mr. Fleetwood's executors continued their ſluice farther upon the ſhore, and erected a new pair of flood-gates, winged with ſtone walls, conſiderably nearer to the out-fall; and they found great benefit from it, as the gates were much leſs liable to be obſtructed by the ſand and mud brought up with the tide.

About the year 1750 Mr. Fleetwood's leaſe expired; and in 1755 the flood-gates and walls were waſhed down by a very uncommon high tide, but were rebuilt (fourteen feet wide) at the joint expence of the proprietors, in whoſe hands it remained in a neglected ſtate for many years; for, as before,

fore, from inattention to the cleanſing of the ſluice, and from the narrow paſſage at the flood-gates, which were ſtill liable to be choaked with mud, &c. and much of the out-fall being loſt, the lands upon the Meer became again of little value, being covered with water all the winter, and liable to be flooded by very trivial ſummer rains.

In this condition the beſt Meer lands let for a few ſhillings the large acre only.

In the year 1778 I ſettled here; and as the moſt extenſive and valuable ſhare of the Meer belonged to this eſtate, I had the levels taken from low-water mark; and finding a conſiderable fall, I had recourſe to Mr. Gilbert, of Worſeley (who had judiciouſly planned, and happily executed the aſtoniſhing works of his Grace the Duke of Bridgewater). To his friendſhip and abilities I am indebted for the ſucceſs of the drainage; for, after the moſt minute inſpection, he gave me every encouragement, and kindly aſſiſted

aſſiſted me in directing the undertaking, By his advice I applied to the other four proprietors of Martin Meer, for a leaſe for the term of three lives for their ſeveral ſhares, and opened to them my intention of effectually draining the whole at my own expence. In 1781 I obtained the leaſes from all the proprietors (one only excepted), and immediately began the work.

The plan Mr. Gilbert ſtruck out (which I have executed), was to have in the main ſluice three different pair of flood-gates. The firſt are, to keep the ſea out, which are called the Sea-gates. The ſecond pair are erected at about half a mile diſtance nearer to the Meer, to ſtop the ſea there, in caſe any accident ſhould happen to the firſt: theſe are termed the Stop-gates. The third pair are built cloſe to, and in the ſame walls with the Sea-gates, but open and ſhut in a contrary direction to them: theſe are named the Fluſhing-gates. All theſe three flood-gates are kept open, to give a free paſſage

paſſage to the waters from the Meer, when the tide has ſufficiently retired; and when the tide riſes again above the level of the waters on the Meer, the ſea-gates are ſhut. In dry ſeaſons, when a ſufficient quantity of water does not come down from the Meer, to keep the out-fall ſluice open acroſs the looſe flying ſands on the ſhore, the tide itſelf is permitted to flow up the ſluice to the ſtop-gates, which are then ſhut; and at high water the fluſhing-gates are cloſed to keep the ſea water in.

N. B. All theſe three ſeveral gates have four paddles at the bottom, three feet in length, and two feet in depth, which are drawn up by ſcrews, to fluſh away any obſtacle that may chance to impede their working.

At low water the paddles of the fluſhing-gates are drawn up, and the retained ſea-water ruſhes out with ſo much violence, that the ſluice to low water is in a very ſhort time

time cleanſed from every obſtruction, ſand, mud, &c. that may have been brought up by the tide.

Thus, by the great ſkill and ſuperior ingenuity of one man (Mr. Gilbert), the great obſtacle to the perfect drainage of Martin Meer is done away, which had baffled the many vain efforts of the proprietors for almoſt a century.

By an accurate examination of the out-fall, Mr. Gilbert found it would admit of the ſill or threſhold of the new gates being laid five inches lower than it formerly had been; and he recommended the ſea-gates to be advanced about two hundred yards nearer to the out-fall upon the open marſh. To prevent the ſea flowing into the ſluice behind theſe gates, large and ſtrong banks are thrown up on each ſide, which are continued to the ſtop-gates; and at the ſame time they anſwer another eſſential purpoſe, viz,

viz. by containing a larger quantity of ſea-water to fluſh with.

The new ſea-gates are eighteen feet wide, and nineteen feet and a half high, and the ſill five feet lower than the former: this makes the paſſage in rainy ſeaſons, when the water would have run four feet upon the old ſill, to bear the proportion of one hundred and ſixty-two feet in the preſent gates, to fifty-ſix in the old ones.

When we had ſunk to the proper depth of the foundations of the new gates, we found a quickſand, and built upon it. The walls are twelve bricks in thickneſs at the bottom, and there is no ſettlement, nor have they ſunk in the leaſt.—N. B. Large flat ſtones were laid under the brick and ſtone work, and were the only precaution uſed.

Whilſt the gates were building, I employed all the hands I could procure in deepening

ening and widening the ſluice upon a dead level with the ſill up to the Meer, ſix yards wide at the bottom, allowing a foot and a half ſlope to every foot in elevation. In ſome places the cutting was near twenty feet deep; and at the depth of ſixteen feet in ſand, I found an entire trunk of a tree, which ſquared a foot.

In April 1783 the level was carried up completely to the Meer, which then (owing to the waters having been dammed up), was flooded higher than it had been for ſeveral years. As ſoon as the dam-head was cut, the ſuperior efficacy of the new works appeared; and this uncommon flood ran off in five days, which would have required as many weeks to have been diſcharged through the old flood-gates.

After the waters had run off, the ſluice was deepened nearly to the ſame level through the loweſt parts of the Meer.

The

The ſluice is nearly five miles in length from the ſea gates.

The ditches were next attended to; and ſince the drainage, above a hundred miles in length have been perfected: but as ſmall open drains were neceſſary to carry off the rain-water into the ditches, I procured a draining or guttering plough, on Mr. Cuthbert Clark's conſtruction, which was drawn by eight, ſometimes ten able horſes, and which I can with certainty recommend as a moſt uſeful implement in all fenny countries.

I am greatly indebted to the inventor; for, with this, in one day I cut drains nearly eight miles in length, thirteen inches in depth, twenty inches wide at the top, and five at the bottom, more perfect than could have been done in that land by the hand, and which would have coſt, if done by hand, ſeven pounds five ſhillings and ten pence.

The

The ſummer in 1783 was employed wholly as above, in laying the land dry. In the year 1784 ſome few acres were ploughed, and yielded a tolerable crop of ſpring corn; ſome yielded a very inferior kind of hay: the reſt was paſtured. Early the laſt year I prepared for oats and barley, and ploughed nearly two hundred large acres.

The effects of the drainage appear from the crops; for I have ſold barley for eleven pounds ſeventeen ſhillings and ſix pence the large acre, the produce of the land which before let at no more than four ſhillings the acre; and oats at ten pounds ſeventeen ſhillings and ſixpence per acre, off land, which would bring no price before; the purchaſer to cut, carry off, &c. all at his own expence.

From the lands which before afforded a very poor paſture in the drieſt ſummers, I laſt year fed ſeveral head of Scotch cattle, which

which did better than any that were fattened upon the beſt grazing lands in our neighbourhood. The beſt meadow lands in the moſt favourable ſeaſons did not let for more than about nine ſhillings per acre.

Laſt year I mowed many acres, worth three pounds, and let off ſeveral of inferior graſs, at two pounds per acre, reſerving the after-graſs for my own cattle.

IN conſequence of a Letter written to Mr. ECCLESTON, the following ACCOUNT was received from that Gentleman, with the annexed HISTORY of the DISORDER among the HORNED CATTLE at Standiſh.

SIR,

IN yours of the 31ſt of January, 1788, you deſired me to tranſmit, for the inſpection of the Society, a further account of the improvements that have been carried on upon Martin Meer. This I had before intended, but was prevented giving a particular account from the different loſſes that have annually been ſuſtained ſince the account ſent up in 1786. In the autumn of that year, from the failure of the Douglas-bank, in Ruffard, moſt of the corn crops, which were very luxuriant, were deſtroyed, or greatly damaged: the loſs ſuſtained from it was computed at upwards of ſeven hundred pounds.

The Douglas diſcharges itſelf into the Ribble ſeveral miles nearer to Preſton than the out-fall from Martin Meer. The Douglas waters have no communication with the

the drainage, but running upon a conſiderable higher level, when its banks fail, the waters fall upon the Meer.

In the autumnal equinoxial rains of 1787, the banks of the Leeds and Liverpool canal broke during a heavy flood, and diſcharged all the waters (with thoſe running into it), from a level of twenty-eight miles in length: they carried away or deſtroyed moſt of the cut and unreaped corn, after-math, paſture, turneps, rape, &c. by which flood and other waters a damage equal to the former was ſuſtained.

The damages done by the canal are to be determined and ſettled by arbitration.

The works erected for the drainage have fully anſwered every expectation, and never failed in any one inſtance.

The foregoing accidents have determined me to adopt, in great meaſure, the grazing

inſtead of the tillage line. Low-lying lands are moſtly late ſown, and more liable from that circumſtance to ſuffer from the autumnal floods.

Early in the year 1787, I went through ſeveral of the fen lands in Lincolnſhire; and finding their practice in many reſpects ſuperior, I hired two huſbandmen from thence, and procured ſome fen-ploughs with wheel-coulters, which anſwer infinitely better than our own. The labourers of this neighbourhood are now expert in the management of them, and plough daily, with two horſes a-breaſt without a driver, double the quantity they were uſed to do, and that frequently with three horſes and a driver. Some of the lands are ſo tender, that a board or patten of nine inches or more in diameter is fixed on each foot of every horſe; and from ſuch lands very great crops have been obtained. By cultivation the ſame ſoil will in a few years become ſufficiently firm

to

to carry the horſes without thoſe precautions.

For the firſt crop I adopted the uſual preparation of paring and burning; but finding the ſurface of the neighbouring lands much lowered by a continuance of that practice, I mean in future entirely to relinquiſh it, and in lieu have adopted a practice ſimilar to Mr. Duckett's, of Eſher, mode of trench-ploughing. Mr. Duckett's trench-plough did not anſwer, owing to the toughneſs of the ſward. I beg leave to remark, that this neighbourhood is much indebted to Mr. Duckett, who has allowed one of his ſons to remain in this county to inſtruct us in the management of his implements and his courſe of huſbandry. In ſandy, or light loamy ſoil, it is by far the moſt profitable, as well as the leaſt expenſive ſyſtem a tillage-farm can be conducted on. I mention the above from experience, and have adopted, where admiſſible, his implements and entire practice.

On the Meer lands, a common paring-plough, with two light horſes and a driver, takes up the green ſward from two to three inches in thickneſs, which is followed by the wheel-coulter fen-plough with two horſes a-breaſt. This takes up a furrow from five to ſix inches thick, with which the green-ſward furrow is covered: the ſward which is laid at the bottom of the furrow, by the firſt plough, enables the off-horſe in the laſt to walk in the furrow without ſinking: the freſh ſoil brought up by the laſt plough, will lie a conſiderable time without throwing up any weeds, but from the expoſure to the atmoſphere becomes friable, and fit for the reception of proper ſeeds. What lands a dry autumn will permit to be ploughed as above, will the following ſpring be early ſown with oats, whenever the weather is favourable. The lands ploughed as above in ſpring will be laid down for paſture or meadow, with graſs and rape-ſeeds ſown together.

The laſt year I laid down eight large acres (eight yards to the pole), with graſs-ſeeds and rape, which kept during autumn three hundred large lambs for nine weeks, the lambs moſtly of Mr. Bakewell's breed. Finer graſs cannot be ſeen; which has been highly manured by the eatage the rape afforded.

Flax ſucceeds very well, and with very little trouble; and, as it is earlier pulled than other crops are ſhorn, is certain to eſcape the damage done by the autumnal rains to the neighbouring banks, whoſe failures have proved ſo detrimental to the Meer.

This year and the laſt, during the froſt, many difficulties have been ſurmounted by making good roads for ſome miles in length over the ſofteſt places, many yards deep of quagmire. Faggots were laid, and covered a conſiderable thickneſs with ſand, which in thoſe circumſtances make efficient good

roads, equal to any weight of carriage. The land is too ſoft, without great expence, to ſupport gate-poſts: in lieu of gates, boarded moveable ſledges are laid over the ditches when wanted, and drawn away (by a horſe) to confine the cattle in each paſture.

Of all ſtock, horſes have hitherto paid the beſt on the natural coarſe graſs and weeds on the ſofteſt lands: they come on as well in ſummer as in any of the incloſed higher grounds. On this account my breeding ſtock in that line has been much increaſed, having forty-two mares in foal this year: the next ſpring I ſhall have from fifty to ſixty mares put to the horſe.—The breed is of the coach kind.

It has been remarked, that lambs whilſt on the ewe grow and improve more on the Meer than on the beſt old incloſed lands in the neighbourhood; but the ewes are far inferior in condition to thoſe kept on the other lands: the old ſheep have been very

ſubject

ſubject to the rot on the Meer, indeed, throughout this neighbourhood.

Could the rot be prevented, the drained lands would conſtantly keep, beſides the preſent ſtock, one thouſand five hundred ewes, and bring up their lambs in ſummer.

Could any reward be too great for a preventative or cure of that fatal diſorder, of which ſo many thouſands die annually in this kingdom? Black cattle have not ſucceeded ſo well in the rearing line as might have been expected, and that entirely owing to the ignorance of cow-doctors in their diſorders.

The laſt year I reared upwards of ſeventy calves, and ſhould annually have attempted to rear one hundred, were it not for the diſorder called here the *Hyon*. The cattle are chiefly of the long-horned kind, which I find hardier than the Galloway Poles, or the ſhort-horned breed. In proportion to the

the juſtneſs of their make, they ſtand the cold and coarſe food the better.

I am,

SIR,

Your much obliged

And obedient humble ſervant,

THOMAS ECCLESTON.

Scariſbrook, 20th Jan. 1789.

Mr. MORE.

P. S. I take the liberty of troubling you with a few remarks on the neceſſity of, or the advantage that would accrue to the public from, a Veterinarian School. In other countries they have already found the benefit of that uſeful inſtitution. I am informed, at Copenhagen, a Royal Veterinarian School is eſtabliſhed; and our wiſe

wiſe political neighbours have two, viz. one at Paris, the other at Lyons. From ſeveral of my acquaintance in France, I am informed that horſe-ſurgery and every other branch of farriery is much improved ſince their eſtabliſhment. A few facts, that have come to my knowledge, I beg leave to mention; and have incloſed for your peruſal, an account of the late diſorder among the cattle at Standiſh Hall, which was ſent to me, as I act for Mr. Standiſh during his ſtay abroad.

Mr. Moorcroft, who attended, and drew up the account, is a young man of the greateſt abilities, and has agreed to turn his thoughts from the practice of phyſic and ſurgery, entirely to that of farriery in every branch, provided he can meet with ſufficient and certain encouragement in the eſtabliſhment of a Veterinarian School. If you can point out any method likely to raiſe a ſubſcription for ſuch a purpoſe, you will

will confer a ſingular favour on all the farming line.

Mr. Dicconſon, of Aſton Frodſham, Cheſhire, a few years ago loſt in a ſhort time eighty head of cattle: neither the cauſe, nor a cure of the diſorder, has as yet been diſcovered.. I have not heard of any appearance ſince his cattle died.

In the year 1780, I loſt eleven out of thirten rearing calves by the diſorder here called the *Hyon*. I have conſulted the faculty, and all the farriers hereabouts, who as yet have not been able to determine, whether it be of the inflammatory or putrid kind: one half of the rearing ſtock in this neighbourhood, in my opinion, fall victims to it. In the year 1781, I loſt by the ſame diſorder thirteen out of fifteen rearing calves; at preſent have only twenty-eight calves living out of upwards of ſeventy that were reared the laſt year. From Tueſday the 6th to Monday the 11th of this

this month, I loſt by the *Hyon* twenty-four head, although every aſſiſtance was procured this neighbourhood afforded. Moſt of the others that I have loſt, have died of the above diſorder, but cannot exactly aſcertain the number.

The diſorder ſeems chiefly confined to the two counties, Lancaſhire and Cheſhire. It is not to be found in any book of farriery: it reſembles what is termed in Lincolnſhire, amongſt the ſheep, the *Reſp*: it is mortal, and generally ſeizes the beſt-conditioned of the ſtock, but ſeldom or never after they have been put to the bull.

HISTORY *of the* DISORDER *among the* HORNED CATTLE, *at* Standiſh, *near* Wigan.

ON the 20th of October, 1788, a heifer in calf was found dead in the field: ſhe had been ſeen the day before, and no marks of diſeaſe were at that time obſervable.

In the courſe of the day, two more cows were attacked with difficulty of breathing, conſiderable enlargement of the noſtrils and throat, preceded by, and accompanied with great proſtration of ſtrength, heavy languid countenance, loſs of appetite, and a diſcharge of mucus from the noſtrils, which at firſt was fluid and colourleſs, but toward the cloſe of the diſorder became yellowiſh, and of thicker conſiſtence, though not fetid: an increaſed degree of theſe ſymptoms terminated in death, uſually in leſs than

than forty-eight hours. At the firſt appearance of the complaint, all the cattle were bled, and had their noſes ſmeared with tar: large rowels, compoſed of the leaves of bearsfoot, cloves of garlick, and other ſtimulating ſubſtances, were inſerted in the dewlap.—No accurate account of the appearances, on opening them, could be procured.

Not having derived any advantage from the aſſiſtance of men the moſt experienced in the diſeaſes of cattle, it was thought proper to ſtate the caſe to Dr. Brandreth, and Dr. Lyon, of Liverpool: theſe Gentlemen, from the mode of attack, rapid progreſs, and ſpeedy termination of the complaint in death, were induced to conſider it as a diſeaſe of the putrid kind.

In conformity to this opinion, ſuch a mode of treatment was recommended to be adopted, as appeared to them moſt likely to ſupport vital energy, and reſiſt putrefaction.

With

With theſe views, large quantities of Peruvian bark, in Port wine, or ale, were adviſed to be given; the inteſtinal canal to be kept gently open, but the uſe of purgatives was interdicted: bliſters, and cloths wetted with a ſtrong ſolution of camphor in ſpirit of wine, were ordered to be applied to the inflamed parts, and to be retained by means of linen moiſtened with the ſtrongeſt vinegar. Cold water was directed to be daſhed upon the diſeaſed cattle twice in the day.

In order that the methods recommended might be properly inforced, I was commiſſioned to go to Standiſh, along with Mr. Wilſon, an experienced Farrier. One cow was apparently in a dying ſtate, when we came: the head and neck were much ſwollen, and reſpiration was performed with the utmoſt difficulty.—As it was evident that ſhe could not live long in that ſituation, I made a tranſverſe inciſion betwixt the rings of the wind-pipe: ſhe appeared im-

mediately to be much relieved, breathed more freely, made an effort to riſe, and lived nearly two hours after.

In every one that was affected, great debility, laborious reſpiration, diſcharge of mucus from the noſtrils, and enlargement of the head and neck, obtained in greater or leſs degree. The belly was in general open; they ſwallowed without difficulty, ſtaled freely, and no preternatural appearance was diſcoverable in the dung or urine. A few hours before death, the ſkin became hotter than is uſual: this was ſucceeded by cold clammy ſweats, and ſwelling of the belly. Their breath had a peculiar ſmell, but was not fetid. The pulſe varied conſiderably: in one of two cows, which were ſeized nearly at the ſame time, it beat ſeventy-two; in the other, one hundred and twenty times in the minute; a few minutes only elapſing betwixt the examination of each.

With the approbation of Dr. Stapleton, of Preſton, who was preſent, I made inciſions into the inlarged parts, with a view to unload the cellular membrane.

By the advice of this Gentleman, one cow, a little indiſpoſed, was bled, and that in a full ſtream, in order to aſcertain the putrid or inflammatory ſtate of the blood: it had no appearance of ſize, but on the next day became offenſive, and the craſſamentum was of a particularly looſe texture. This cow died the following day; it did not appear either to ſuffer, or benefit, by the loſs of blood. Dr. Stapleton recommended the perſeverance in the means ordered by Drs. Brandreth and Lyon. The daſhing with cold water appeared to refreſh, and render them ſomewhat more cheerful.—An ounce of bark was adminiſtered every two or three hours.—Every mode of treatment which had been recommended, did not appear to have much influence in the prolongation of life: it muſt, however,

be

be acknowledged, that in all the inſtances in which theſe means were uſed, the diſeaſe was in an advanced ſtate.

Immediately after my arrival, a cow which had been affected with the above ſymptoms for a few hours only, and was in a leſs advanced ſtate, was killed, in order to examine the morbid appearances in ſuch ſtate.—The fauces, gullet, wind-pipe, and lungs, appeared healthy; the firſt ſtomach was ſomewhat inflamed; the ſecond and third had no ſigns of diſeaſe; but the inner coat of the fourth exhibited a conſiderable degree of inflammation.—The enlargement of the head and neck was owing to a collection of yellow tranſparent fluid in the cellular membrane, which coagulated on expoſure to a gentle heat.—The morbid appearances in the other cows that were opened (and that immediately after death) were in general uniform.—The lungs were in ſome part eroded, in others mortification had actually taken place; and on opening

the cheſt, a quantity of putrid air ruſhed out. The membrane lining the noſtrils and wind-pipe was in almoſt every inſtance much inflamed.

The heart, in moſt caſes, had partaken of the inflammation; the reſt of the viſcera were generally uninjured.—In one cow, which had been affected with vertigo (clearly expreſſed by her motions), a ſmall quantity of purulent matter was effuſed upon the dura mater: no other morbid alteration appeared in the brain, nor was any diſcoverable in that of the reſt. It was particularly inſiſted upon by Drs. Brandreth and Lyon, that all communication betwixt the diſeaſed and healthy cattle ſhould be avoided: perſons who had been much among the infected animals, were expreſſly forbidden to approach thoſe which were well. The greateſt praiſe is due to Mr. Ainſley, agent for Mr. Standiſh, for his unremitted attention to this circumſtance, and for his very vigorous proſecution of every method which had

had been thought expedient.—Malt was recommended as a cordial and antiſeptic food.—On the 28th advice was ſent to the above-mentioned Gentlemen, that every attempt had proved inefficacious.—On the 29th Mr. Puiſglove, of Sheffield, (a Gentleman who had long paid attention to the diſeaſes of cattle) came over to Standiſh; he agreed with the Medical Gentlemen reſpecting the putrid nature of the diſorder.

On examining the remaining ſtock, the languid movement, dejected countenance, and a ſmall diſcharge of mucus from the noſtrils of three cows, gave reaſon to ſuppoſe they were infected.—Two drachms of emetic tartar, a ſcruple of calomel, and ten grains of powdered opium, were immediately given to each.—In the ſpace of two hours, they appeared to be much deranged, trembled exceſſively, and perſpired copiouſly: theſe appearances were ſoon followed by violent purging. Twelve hours

after, an ounce of bark, with two drachms of camphor, and the ſame quantity of laudanum, were adminiſtered in a quart of ſtrong ale.—Quick-lime was thrown into the pond from which they drank.—The next morning they appeared more ſprightly, but marks of diſeaſe were ſtill obſervable, particularly in one.—This medicine (the bark and camphor) was repeated every twelve hours.

On the morning of the 30th an expreſs arrived from the Gentlemen at Liverpool, intimating that it was their wiſh that the former methods ſhould be perſiſted in; not having been appriſed of the favourable change which had taken place under Mr. Puiſglove.

The vapour of boiling vinegar, or highly rectified ſpirit of wine, in which camphor had been freely diſſolved, was directed to be placed under the noſtrils of the cattle. Bark, wine, ale, and ſtrong wort, with

the addition of the vitriolic acid, were ordered to be given in large quantities.

Bleeding was particularly forbidden.—Happily, however, no further medical aſſiſtance was required.—Provided the contagion continued to ſpread, it was their opinion that it would be adviſeable to deſtroy every infected animal out of Standiſh-Hall farm, on the earlieſt appearance of the diſorder.—No doubt can be entertained reſpecting the contagious quality of the diſeaſe.—Two cows of Mr. Hatton, a neighbouring Gentleman, unfortunately in the night broke in among the Standiſh-Hall cattle, ſoon after the firſt appearance of the complaint; and both died of the diſorder.—No noxious vegetable could be found among the herbage, after the moſt careful examination.

The firſt cows that were ſeized were in an old ley; the cattle of the Standiſh-Hall farm had always been remarkably healthy

previous to this attack.—All the cattle which died, were, as ſoon as poſſible, buried at leaſt four yards deep.—Twenty-one were attacked, and only three have recovered.—The diſorder, from the beſt intelligence, appears to be intirely ſtopped.

W. MOORCROFT, Pupil to Dr. LYON.

Nov. 12, 1788.

THE

THE Thanks of the Society were preſented to Sir JOSEPH BANKS, Bart. Preſident of the Royal Society, for his attention to the views of this Inſtitution, by the following communication reſpecting the diſorder called the Scab in Sheep.

The Society during the courſe of ſeveral years offered Premiums for the diſcovery of an effectual remedy for this diſeaſe, but without effect, though ſome claims were made for the reward offered; yet, as the following method has been found fully adequate to the purpoſe intended, it is hoped due attention will be paid to it in the different parts of the kingdom; and any accounts of the ſucceſs attending its uſe, will be well received by the Society.

SIR,

SIR,

HAVING obſerved, in the laſt volume publiſhed by the Society for the Encouragement of Arts, Manufactures, and Commerce, that an effectual method of curing the Scab in Sheep was ſtill wanting to the Farmers (in the South of England at leaſt), when it was publiſhed; I take the liberty of tranſmitting the encloſed receipt to you.

Take one pound of quickſilver,
half a pound of Venice turpentine,
half a pint of oil of turpentine,
four pounds of hogs lard.

Let them be rubbed in a mortar till the quickſilver is thoroughly incorporated with the other ingredients; for the proper mode of doing which, it may be neceſſary to take the advice, or even the aſſiſtance, of ſome apothecary, or other perſon, uſed to make ſuch mixtures.

* The

* The method of uſing the ointment is thus: Beginning at the head of the ſheep, and proceeding from between the ears along the back to the end of the tail, the wool is to be divided in a furrow till the ſkin can be touched; and as the furrow is made, the finger ſlightly dipped in the ointment is to be drawn along the bottom of it, where it will leave a blue ſtain on the ſkin and adjoining wool: from this furrow, ſimilar ones muſt be drawn down the ſhoulders and thighs to the legs, as far as they are woolly; and if the animal is much infected, two more ſhould be drawn along each ſide, parallel to that on the back, and one down each ſide between the fore and hind legs.

* Though there does not appear to be any difference between this ointment and the Unguentum Cæruleum of the ſhops, I have choſen to give the receipt exactly as it was given to me. Some of our Graziers begin to uſe it by rubbing it into the naked part of the thigh and fore leg; a practice much leſs troubleſome, but which requires much more judgement than the above.

Immediately

Immediately after being dreſſed, it is uſual to turn the ſheep among other ſtock, without any fear of the infection being communicated; and there is ſcarce an inſtance of a ſheep ſuffering any injury from the application. In a few days the blotches dry up, the itching ceaſes, and the animal is completely cured: it is generally, however, thought proper not to delay the operation beyond Michaelmas.

The Hippoboſca Ovina, called in Lincolnſhire, Sheep Fagg, an animal well known to all ſhepherds, which lives among the wool, and is hurtful to the thriving of ſheep, both by the pain its bite occaſions, and the blood it ſucks; is radically deſtroyed by this application; and the wool is not at all injured. Our wool-buyers purchaſe the fleeces on which the ſtain of the ointment is viſible, rather in preference to others, from an opinion that the uſe of it having preſerved the animal from being vexed either with the Scab or Faggs, the wool

is

is leſs liable to the defect of joints or knots; a fault obſerved to proceed from every ſudden ſtop in the thriving of the animal, either from want of food, or from diſeaſe.

This mode of curing was brought into that part of Lincolnſhire where my property is ſituated, about twelve years ago, by Mr. Stephenſon, of Mareham, and is now ſo generally received, that the Scab, which uſed to be the terror of the farmers, and which frequently deterred the more careful of them from taking the advantage of paſturing their ſheep in the fertile and extenſive commons with which that diſtrict abounds, is no longer regarded with any apprehenſion: by far the moſt of them have their flock anointed in autumn, when they return from the common, whether they ſhew any ſymptoms of ſcab, or not; and having done ſo, conclude them ſafe for ſome time, from either giving or receiving infection. There are people

people who employ themſelves in the buſineſs, and contract to anoint our large ſheep at five ſhillings a ſcore, inſuring for that price the ſucceſs of the operation; that is, agreeing, in caſe many of the ſheep break out afreſh, to repeat the operation *gratis*, even ſome months afterwards.

I beg to have it underſtood, that in communicating this information to the Society, I do not offer myſelf as a Candidate for the Medal propoſed by them as a reward: having been neither the diſcoverer nor the introducer of the remedy, I can lay no claim to it. Reſpect to the patriotic views which have ever guided their conduct, and the hope of being uſeful to the Breeders of Sheep, are the motives which have induced me to lay this paper before them; and an additional one I confeſs it to be, that it gives me an opportunity of publicly teſtifying the reſpect with which, in conſequence of your active induſtry, in bringing forward uſeful inventions,

tions, and checking the pretenſions of deſigning impoſtors, I can with ſincerity profeſs myſelf

Your real well-wiſher,

And faithful ſervant,

JOSEPH BANKS.

Soho Square, April 17, 1788.

THE

THE Thanks of the Society were given to Mr. WAGSTAFF for the following Letter on the Uſe of the *River Conferva* as a Manure.

GENTLEMEN,

AMIDST the various encouragements for the improvement of your country, you have been attentive to the comparative value of manures; but I have not in preſent recollection any immediate encouragement for the diſcovery of any new ſubſtance, whoſe unknown virtue might be called forth by experiment.

I beg leave therefore to lay before you a courſe of experienced benefit which has reſulted from repeated trials made on the *River Conferva*, extracted with its roots, and ſo much of its muddy bed as adheres to their deep and interwoven fibres. Theſe, drawn

drawn from a mill-ſtream about Midſummer 1787, were laid to ferment, which followed in a few weeks; and, when the heaps were broken, emitted effluvia which ſufficiently indicated their fermentation.

The firſt experiment was on part of a field preparing for turneps, in an equal proportion as to quantity, with a blended manure from ſtye and ſtable, and ſpread at the ſame time. The boundary of the Conferva manure was exactly determined, and the ſize of the roots and healthy expanſion of the leaves of the turneps in no degree inferior to the general appearance and produce of the field. A load of this, more mixed and digeſted, and ſomewhat incorporated with a broken ſod of the river's ſide where it was laden, I laid on an entire gravel, and thereon planted cabbage of different ſpecies, and at the ſame time planted ſome of either ſort on a garden ſoil, and on a mud, in ſeparation from all aquatic weeds and every other ſubſtance.

The progreſs on the firſt was great, and obviouſly ſuperior to thoſe on the garden mould; while thoſe on the unblended mud were unhealthy and diminutive. In ſucceſſion to the cabbage experiment, on part of the ſame ſpace, in the enſuing ſpring, I planted, about eighteen inches aſunder, ten potatoes, about the ſize of turkey eggs; and, at an equal diſtance, parings of about fourteen more (from ſomewhat larger roots), in nine diviſions or ſets: the produce of which were, when taken up October the ſeventh, 1788, twenty-nine pounds four ounces from the ten whole potatoes, and twenty-nine pounds twelve ounces from the nine diviſions of parings; and, what may appear ſingular, two of the largeſt potatoes, which weighed together thirty-one ounces, aroſe from the parings; the two largeſt from the whole potatoes, were twenty-five ounces.

As, perhaps, the mode of raiſing potatoes from parings may not be generally apprehended,

hended, I ſhall juſt take the liberty of remarking on that head, that what theſe were propagated from were not cloſe pared, but in the manner which turneps generally are for the table, whereby two thirds or more of the farinaceous ſubſtance of the potatoes were boiled, and anſwered the intention of this eſculent root.

In ſucceſſion to the turneps before mentioned, followed barley, a large and better crop than ever grew on that field before; and the diviſions where the aquatic compoſt was ſpread, were diſtinguiſhably productive. A contra-diſtinction was ſtill more obvious in a low field dibbled with wheat—a hilly gravel ariſing in one part of it was ſpread with this manure, and the nether and deeper ſoil around it left to its inherent quality; the former, though with only a thin ſurface of earth upon it, carried the appearance of double the crop to the better natural ſoil not ſpread with the aquatic compoſt.

I wiſh to add, that all river-weeds, mown in their moſt herbaceous ſtate, and carried to the up-land arable, will remarkably promote the forward vegetation of turneps, and their conſequent increaſe in root: but that operation leaves the more efficacious fibres and roots of the river-weeds unremoved. Nor, indeed, is the Conferva by its adheſion to the beds of rivers eaſily ſevered by the ſcythe, but by the method referred to, of drawing out the Conferva particularly, and in general the whole tribe of aquatic plants, root and herbage, with ſo much of the river ſoil as adheres to their fibres: and being expoſed a time to the fervor of the longeſt days, their warmth, with the reſident principles of fermentation in their blended maſs, will prepare it for the uſeful purpoſes of agriculture; and when ſpread, as the common manure is ſpread, over arable land, an increaſe of its production will follow, perhaps ſignally ſuperior to what ariſeth from thoſe dreſſings the ſoil has been accuſtomed to.

I may

I may take the liberty of adding, that the Confervas, or ſomewhat of a ſimilar manure, are eaſily procurable through the general part of the nation; for where rivers are not in vicinity, there are but few diſtricts where the current of the fountain, or the increaſing rivulet do not wind their way. The borders of theſe ſhallow runs are not unfrequently encumbered with lofty paluſtrian plants, whoſe removal is an immediate advantage to the adjoining paſturage, and a conſequent ſuperior benefit to every arable field where applied. I am, with an eſteem of your diſtinct partriotiſm,

Your reſpectful friend,

JOHN WAGSTAFFE.

Norwich, Dec. 31, 1788.

To the Society for the Encouragement of Arts, Manufactures, and Commerce.

ERRATA.

Page 51, line 2 from the bottom, and page 74, line 8, for *Scariſbrook*, read *Scariſbrick*.

120, 6 and 16, for *Swaine*, read *Swayne*.

152, read 125.